

**Perception & knowledge about digital dentistry among dental professionals in Patna, Bihar - A descriptive cross sectional study**

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**Abstract**

**Background:** Technology has gone through many phases of evolution; from manual to automated and now digital. Digitized procedures have recently been linked with dental practice through computer based technology and virtual application reality software that allows dental practitioners and students to easily simulate and sense the actual patient’s status. Progressively increased digital applications are employed in dentistry and became

essential tools in the field of training, education, and research related to clinical and dental practice

**Aim:** To assess the “Perception & Knowledge about Digital Dentistry among Dental Professionals in Patna, Bihar.”

**Objective:** 1. To assess the knowledge, Attitude & Practice of dental professionals towards digital dentistry.  
2. To determine Perceived obstacles to the use of Digital and electronic technologies in Dental offices.

**Methodology:** A cross-sectional study was conducted among simple random sample of 200 dental professionals of Patna, Bihar. A close-ended questionnaire containing 40 items pertaining to Knowledge, Attitude, Practice & perceived obstacles towards digital dentistry was used. Data were collected, compiled & tabulated using Microsoft excel & analyzed by Chi-square test with  $p < 0.05$  as significant.

**Result:** Qualification wise 70.5% post graduates & category wise 30.9% PG student were having more knowledge of digital dentistry as compared to general practitioner, faculty/researcher or both. Regarding the Attitude towards Digital dentistry, Qualification wise 65.3% postgraduates & category wise 27.7% PG student were having higher attitude towards digital dentistry. Qualification wise majority of the dental professionals 53.1% post graduates were practicing Digital dentistry & Category wise 24.1% i.e. majority of General practitioner were practicing Digital Dentistry. 85% Dental professionals considered high cost as main perceived barrier of digital dentistry.

**Conclusion:** It is found that Postgraduate dental professionals were having more knowledge & attitude towards digital dentistry were as general practitioner were better in practicing digital dentistry.

**Keywords:** Perception, Digital Dentistry, Perceived Obstacle, Electronic Technologies

### **Introduction**

Whether it is General health or Oral health, Health care has changed dramatically with the era of computers and technology.<sup>1</sup>Technology, today, is the part of everyone's daily life. Technology too has gone through many phases of evolution; from manual to automated and now Digital. With the fast conversion of every technical job to the digital system, professions have become very convenient.<sup>2</sup>The world of dentistry is fast shifting to the

digital era.<sup>2</sup>Digital dentistry may be defined in a broad scope as "Any dental technology or device that incorporates digital or computer-controlled components in contrast to that of mechanical or electrical alone."Digital technologies continue to aid dentist's efforts to ensure patients receive the best possible treatment under the most comfortable circumstances.<sup>3,4</sup> If the dental technology is fully understood and properly implemented, then dentists can provide better care for the patients and improve their clinical practice.<sup>5,6</sup>As digital technologies continue to develop further and as in the wider society digital methods are increasingly available, their use by dental practitioners can be expected to rise further.<sup>7</sup> Thus this study was conducted with the aim to assess the "Perception & Knowledge about Digital Dentistry among Dental Professionals in Patna, Bihar."

### **Objectives**

1. To Assess the knowledge, Attitude & Practice of dental professionals towards digital dentistry.
2. To determine Perceived obstacles to the use of Digital and electronic technologies in Dental offices.

### **Methodology**

A descriptive cross-sectional study was conducted among dental professionals from January 2019 to February 2019 in Patna City. Ethical approval for the study was obtained from the Institutional Review Board, Patna and Informed Consent was obtained from the participants.

Data had been obtained from a sample of 200 dental professionals of Patna City selected by simple random sampling method.

Dental professionals who are PG student, General practitioner, teaching faculty/Researcher or both were included in the study; whereas dental professionals not willing to participate in the survey were excluded from the study. The data was collected using a close-ended questionnaire which consisted of 4 major groups: Socio

demographic data, Knowledge about the Digital Dentistry, Attitude towards the practice of Digital Dentistry, Perceived obstacles towards practice of Digital Dentistry. All dental professionals were visited at their working hours on weekdays. All the available and willing dental professionals were given the questionnaire on the day of visit. The participants were asked to respond to each item according to the response format provided in the questionnaire. Dental professional's identities were kept confidential and questionnaires were collected on the same day.

The data obtained were compiled and entered in MS Excel sheet and analyzed using Graph Pad (version 5). The recorded values were represented as number (n) and percentage (%). Chi – Square test was applied to analyze the association between two parameters and level of significance i.e., 'p' value of less than 0.05 was considered as significant.

### **Results**

A total of 200 dental professionals, 156(78.0%) MDS and 44(22.0%) BDS participated in the study.

In the present study, majority of the study subjects 102(51%) were males and 98(49%) were females. Among the total study subject majority 67(33.5%) were General practitioner followed by 65(32.5%) were PG student, 59(29.5%) were both as general practitioner and faculty/researcher & only 9(4.5%) were Faculty/Researcher. (Table 1)

The Table 2 gives the response of the subject regarding their participation in any dental workshops/CDE'S Programme/courses/ seminars / reading of Journals or newsletter according to which majority of subjects 183 (91.5%) participated in dental workshops/CDE'S Programme.

Regarding the knowledge of Digital Dentistry in relation to Administrative & Communication Technologies as well

as Clinical & Diagnostic Technologies, it was observed that qualification wise majority of the dental professionals with post graduate qualification were more aware of it & Category wise PG students were having more Knowledge of Digital Dentistry as compared to General Practitioner, Faculty/Researcher or Both.

In relation to administrative & communication technologies skill , It was observed that out of 200 Dental Professionals, 91.5% subjects were aware of Digital appointment or reminders, 86% Subjects were aware of Digital Dental record maintenance, 88.5% subjects were aware of Digital Dental Advertisement, 91.5% subjects were aware of Role Of Social Media In Promotion Of Digital Dentistry& 90% subjects were aware of Digital Dental Health Education among which qualification wise majority of the subjects 70.5% were postgraduates(Table 3) and category wise majority of the subjects 30.9% were PG student.(Table 4)

In relation to clinical & diagnostic technologies, It was observed that out of 200 Dental Professionals, 94.0% subjects were aware of Digital Intra Oral Radiography , 90.5% subjects were aware of Digital OPG, 94.5% subjects were aware of Digital 3 D Radiography (CBCT), 85.5% subjects were aware of Intra Oral camera , 78% subjects were aware of Intra oral scanner , 86% subjects were aware of CAD/CAM System , & 69% subjects were aware of Digital color determination among which qualification wise majority of the subjects 66.3 % were postgraduates(table 5) and category wise majority of the subjects 29% were General Practitioner.(table 6)

Regarding the attitude towards Digital Dentistry, it was observed that qualification wise majority of the dental professionals with post graduate qualification were having higher attitude & Category wise PG students were having

higher attitude towards Digital Dentistry as compared to General Practitioner, Faculty/Researcher or Both.

It was observed that out of 200 Dental Professionals, 79.5% subject agreed that working with Digital technology enhances quality of treatment of patient on a large scale , 78.5% subjects agreed that using digital technologies yields better precision in diagnostics ,80.5% subjects agreed that digital technologies improve the diagnosis in complicated cases , 82.5% subjects agreed that digital technologies improve the quality of treatment given to the patient , 87.5% subjects agreed that digital technologies in the dental practice are easier to use , 86.5% subjects agreed that working with digital technologies makes the practice more attractive for the patients ,& 79.0% subjects agreed that digital technologies enable dentist to work more efficiently among which qualification wise majority of the subjects 65.2% were postgraduates(Table 7) and category wise majority of the subjects 27.7% were PG student.

Regarding the practice of Digital Dentistry, it was observed that qualification wise majority of the dental professionals with post graduate qualification were practicing Digital dentistry & Category wise majority of General practitioner were practicing Digital Dentistry as compared to PG student, Faculty/Researcher or Both.

Out of 200 study subjects majority 56.5% of the participants were practicing with digital technologies &

the most common purpose for which they practice digital dentistry was for giving oral health education.(Table 8)

75.5% subjects agreed that digital technologies in the dental practice are easy to use, 84.5% subjects agreed that digital technologies reduce patient chair side time of treatment, 72.5% subjects agreed that digital technologies produce more than what is invested in them, 54.5% subjects agreed that digital machine problem can be fixed by own self among which qualification wise majority of the subjects 53.1% were postgraduates and category wise majority of the subjects 24.1% were General practitioner.

Regarding the perceived obstacles towards practice of Digital Dentistry, it was observed that majority of the dental professionals 85% considered that digital dentistry require a high capital investment and regarded it as main barrier towards practice of digital dentistry.72.5% subjects felt that digital dentistry is profitable for them. 83% subject felt the need of extra training of dentist for using digital dentistry , 74.0% subject were comfortable in using digital dentistry , 63.0% subject felt that working with digital technologies lead one away from core of profession , 85.0% subject felt that they will only purchase a digital technology only when they are sure they will keep on using it for a long time , &51% subjects felt that digital technology is complicated for them among whom overall majority of the subjects 56.35% were postgraduates.(Table 9)

**List of tables**

Table 1: Shows Gender & Category wise distribution of Dental Professionals.

Category	Gender	Total	
	Female	Male	
PG Student	21 (10.5%)	44(22.0%)	65 (32.5%)
General practitioner	36 (18.0%)	31(15.5%)	67 (33.5%)
Faculty/Researcher	4 (2.0%)	5(2.5%)	9 (4.5%)
Both (General practitioner & Faculty/Researcher)	37 (18.5%)	22(11.0%)	59 (29.5%)
Total	98 (49.0%)	102(51.0%)	200 (100%)

The Table 2: gives the response of the subject regarding their participation in any dental workshops/CDE'S Programme/courses/ seminars / reading of Journals or newsletter.

	Participation		Total
	Yes	No	
PG Student	59 (29.5%)	6 (3.0%)	65 (32.5%)
General practitioner	60 (30.0%)	7 (3.5%)	67 (33.5%)
Faculty/Researcher	7 (3.5%)	2 (1%)	9 (4.5%)
Both (General practitioner & Faculty/Researcher)	57 (28.5%)	2 (1%)	59 (29.5%)
Total	183 (91.5%)	17 (8.5%)	200 (100%)

Table 3: Distribution of Study Subjects According To Association between Qualification of Dental Professionals & Their Knowledge towards Digital Dentistry Regarding:

II.A)-Administrative & Communication Technologies Skill

Administrative & Communication Technologies Skill			BDS	MDS	Total	P value
KA.1	Patient general information & dental record can be maintained digitally?	Yes	38(19.0%)	134(67.0%)	172(86.0%)	0.937 (ns)
		No	6(3.0%)	22(11.0%)	28(14.0%)	
KA.2	Dental advertisement can be done through Digital practice website?	Yes	38(19.0%)	139(69.5%)	177(88.5%)	0.615 (ns)
		No	6(3.0%)	17(8.5%)	23(11.5%)	
KA.3	Social media help in promoting digital dentistry?	Yes	38(19.0%)	145(72.5%)	183(91.5%)	0.167 (ns)
		No	6(3.0%)	11(5.5%)	17(8.5%)	
KA.4	Are you aware of digital appointment / reminders?	Yes	36(18.0%)	147(73.5%)	183(91.5%)	0.009 (s)
		No	8(4.0%)	9(4.5%)	17(8.5%)	
KA.5	Dental health education can be provided digitally through digital information screens?	Yes	38(19.0%)	142(71.0%)	180(90.0%)	0.363 (ns)
		No	6(3.0%)	14(7.0%)	20(10.0%)	

Significant (s), non-significant (ns)

Table 4: Distribution of Study Subjects According To Association between Qualification of Dental Professionals & Their Knowledge Towards Digital Dentistry Regarding:-

II.B) Clinical and Diagnostic Technologies

Clinical And Diagnostic Technologies			BDS	MDS	Total	P value
KB.1	Digital Intra oral radiography	Yes	40(20.0%)	148(74.0%)	188(94.0%)	0.328 (ns)
		No	4(2.0%)	8(4.0%)	12(6.0%)	
KB.2	Digital Orthopantomogram (OPG)	Yes	42(21.0%)	139(69.5%)	181(90.5%)	0.204 (ns)
		No	2(1.0%)	17(8.5%)	19(9.5%)	
KB.3	Digital 3 D Radiography (CBCT)	Yes	41(20.5%)	148(74.0%)	189(94.5%)	0.664 (ns)
		No	3(1.5%)	8(4.0%)	11(5.5%)	

KB.4	Intraoral camera	Yes	40(20.0%)	131(65.5%)	171(85.5%)	0.249 (ns)
		No	4(2.0%)	25(12.5%)	29(14.5%)	
KB.5	Intraoral Scanner	Yes	35(17.5%)	121(60.5%)	156(78.0%)	0.779 (ns)
		No	9(4.5%)	35(17.5%)	44(22.0%)	
KB.6	CAD/CAM System	Yes	38(19.0%)	134(67.0%)	172(86.0%)	0.937 (ns)
		No	6(3.0%)	22(11.0%)	28(14.0%)	
KB.7	Digital colour determination	Yes	30(15.0%)	108(54.0%)	138(69.0%)	0.894 (ns)
		No	14(7.0%)	48(24.0%)	62(31.0%)	

Significant (s), no significant (ns)

Table 5: Distribution Of Study Subjects According To Association Between Category Of Dental Professionals & Their Knowledge Towards Digital Dentistry Regarding:-

II.A)-Administrative & Communication Technologies Skill

Administrative & Communication Technologies Skill			PG Student	General practitioner	Faculty/ Researcher	Both (General practitioner & Faculty/ Researcher)	P value
1	Patient general information & dental record can be maintained digitally ?	Yes	61(30.50%)	59(29.50%)	7(3.50%)	45(22.50%)	0.034(s)
		No	4(2.00%)	8(4.00%)	2(1.00%)	14(7.00%)	
2	Dental advertisement can be done through Digital practice website?	Yes	60(30.00%)	58(29.00%)	7(3.50%)	52(26.00%)	0.533(ns)
		No	5(2.50%)	9(4.50%)	2(1.00%)	7(3.50%)	
3	Social media help in promoting digital dentistry?	Yes	63(31.50%)	60(30.00%)	7(3.50%)	53(26.50%)	0.159(ns)
		No	2(1.00%)	7(3.50%)	2(1.00%)	6(3.00%)	
4	Are you aware of digital appointment / reminders?	Yes	62(31.00%)	57(28.50%)	8(4.00%)	56(28.00%)	0.123(ns)
		No	3(1.50%)	10(5.00%)	1(0.50%)	3(1.50%)	
5	Dental health education can be provided digitally through digital information screens?	Yes	63(31.50%)	59(29.50%)	7(3.50%)	51(25.50%)	0.108(ns)
		No	2(1.00%)	8(4.00%)	2(1.00%)	8(4.00%)	

Significant (s), non-significant (ns)

II.B) Clinical and Diagnostic Technologies



Table 6: Distribution of Study Subjects According To Association Between Category of Dental Professionals & Their Knowledge Towards Digital Dentistry Regarding.

Clinical and Diagnostic Technologies			PG Student	General practitioner	Faculty/ Researcher	Both (General practitioner & Faculty/ Researcher)	P value
KB.1	Digital Intra oral radiography	Yes	62(31.00%)	62(31.00%)	9(4.50%)	55(27.50%)	0.774(ns)
		No	3(1.50%)	5(2.50%)	0(0.00%)	4(2.00%)	
KB.2	Digital Orthopantomogram (OPG)	Yes	57(28.50%)	62(31.00%)	8(4.00%)	54(27.00%)	0.797(ns)
		No	8(4.00%)	5(2.50%)	1(0.50%)	5(2.50%)	
KB.3	Digital 3 D Radiography (CBCT)	Yes	62(31.00%)	63(31.50%)	8(4.00%)	56(28.00%)	0.875(ns)
		No	3(1.50%)	4(2.00%)	1(0.50%)	3(1.50%)	
KB.4	Intraoral camera	Yes	53(26.50%)	60(30.00%)	7(3.50%)	51(25.50%)	0.535(ns)
		No	12(6.00%)	7(3.50%)	2(1.00%)	8(4.00%)	
KB.5	Intraoral Scanner	Yes	44(22.00%)	57(28.50%)	7(3.50%)	48(24.00%)	0.095(ns)
		No	21(10.50%)	10(5.00%)	2(1.00%)	11(5.50%)	
KB.6	CAD/CAM System	Yes	53(26.50%)	57(28.50%)	7(3.50%)	55(27.50%)	0.242(ns)
		No	12(6.00%)	10(5.00%)	2(1.00%)	4(2.00%)	
KB.7	Digital colour determination	Yes	44(22.00%)	45(22.50%)	6(3.00%)	43(21.50%)	0.897(ns)
		No	21(10.50%)	22(11.00%)	3(1.50%)	16(8.00%)	

Significant (s), non-significant (ns)

Table 7:- Distribution of Study Subjects According To Association between Qualification of Dental Professionals & Their Attitude Towards Digital Dentistry

Attitude			BDS	MDS	Total	P value
A1	Using Digital technologies yields better precision in diagnostics?	Yes	31(15.5%)	126(63.0%)	157(78.5%)	0.324 (ns)
		No	9(4.5%)	22(11.0%)	31(15.5%)	
		Don't Know	4(2.0%)	8(4.0%)	12(6.0%)	
A2	Digital technologies improve the diagnosis in complicated cases?	Yes	31(15.5%)	130(65.0%)	161(80.5%)	0.107 (ns)
		No	11(5.5%)	19(9.5%)	30(15.0%)	
		Don't Know	2(1.0%)	7(3.5%)	9(4.5%)	
A3	Digital technologies improve the quality of treatment given to the patient?	Yes	37(18.5%)	128(64.0%)	165(82.5%)	0.899 (ns)
		No	4(2.0%)	18(9.0%)	22(11.0%)	
		Don't Know	3(1.5%)	10(5.0%)	13(6.5%)	

A4	Digital technologies in the dental practice are easier to use?	Yes	41(20.5%)	134(67.0%)	175(87.5%)	0.266 (ns)
		No	3(1.5%)	14(7.0%)	17(8.5%)	
		Don't Know	0(0.0%)	8(4.0%)	8(4.0%)	
		Yes	38(19.0%)	135(67.5%)	173(86.5%)	
		No	5(2.5%)	11(5.5%)	16(8.0%)	

Category	Yes	No	Total	P value
PG Student	39(19.50%)	26(13.00%)	65(32.50%)	0.259(ns)
Working with digital technologies makes the practice more attractive for the patients?	39(19.50%)	28(14.00%)	67(33.50%)	
General practitioner	7(3.50%)	2(1.00%)	9(4.50%)	
Faculty/Researcher	28(14.00%)	31(15.50%)	59(29.50%)	
Both (General practitioner & Faculty/Researcher)				
Total	113(56.50%)	87(43.50%)	200(100.00%)	

		Don't Know	1(0.5%)	10(5.0%)	11(5.5%)	
A6	Digital technologies enable dentist to work more efficiently?	Yes	30(15.0%)	128(64.0%)	158(79.0%)	0.077 (ns)
		No	11(5.5%)	18(9.0%)	29(14.5%)	
		Don't Know	3(1.5%)	10(5.0%)	13(6.5%)	
A7	Working with Digital technology enhances quality of treatment of patient on a large scale?	Yes	27(13.5%)	132(66.0%)	159(79.5%)	0.002 (s)
		No	9(4.5%)	16(8.0%)	25(12.5%)	
		Don't Know	8(4.0%)	8(4.0%)	16(8.0%)	

Significant (s), non-significant (ns)

Table 8: Distribution of Study Subjects According To Association Between Category of Dental Professionals & Their Practice Towards Digital Dentistry

I) Do you use digital dentistry in your practice?

II). If yes then for what purpose? (You can click more than one option)

Category	Option				
	Oral health education	Maintaining pt records	CBCT	CAD/CAM	All of the above
PG Student	39 (34.51%)	17 (15.04%)	22 (19.47%)	13 (11.50%)	7 (6.19%)
General practitioner	39 (34.51%)	15 (13.27%)	8 (7.08%)	14 (12.39%)	16 (14.16%)
Faculty/Researcher	7 (6.19%)	2 (1.77%)	3 (2.65%)	1 (0.88%)	4 (3.54%)
Both (General practitioner & Faculty/Researcher)	28 (24.78%)	11 (9.73%)	9 (7.96%)	10 (8.85%)	11 (9.73%)
Total	113 (100%)	45 (39.82%)	42 (37.17%)	38 (33.63%)	38 (33.63%)



Table 09: Distribution of Study Subjects According To Association Between Educational Qualification Of Dental Professionals & Their Perceived Obstacles Towards Digital Dentistry

Perceived Obstacles		BDS	MDS	Total	P value	
PO1	Does using Digital dentistry require a high capital investment?	Yes	36(18.0%)	134(67.0%)	170(85.0%)	0.325 (ns)
		No	8(4.0%)	22(11.0%)		
PO2	For the type of treatment you provide your patients;Is digital dentistry profitable for you?	Yes	35(17.5%)	110(55.0%)	145(72.5%)	0.16 (ns)
		No	9(4.5%)	46(23.0%)		
PO3	Do you feel there is need for any extra training of dentist & dental auxiliary for using digital dentistry?	Yes	38(19.0%)	128(64.0%)	166(83.0%)	0.501 (ns)
		No	6(3.0%)	28(14.0%)		
PO4	Are you comfortable in using digital dentistry (in terms of handling software or hardware of digital dentistry)?	Yes	30(15.0%)	118(59.0%)	148(74.0%)	0.319 (ns)
		No	14(7.0%)	38(19.0%)		
PO5	Does working with digital technologies lead you away from the core of profession?	Yes	32(16.0%)	94(47.0%)	126(63.0%)	0.13 (ns)
		No	12(6.0%)	62(31.0%)		
PO6	I only purchase a digital technology when I am sure I will keep on using it for a long time?	Yes	36(18.0%)	134(67.0%)	170(85.0%)	0.325 (ns)
		No	8(4.0%)	22(11.0%)		
PO7	Do you feel digital technology is complicated for you?	Yes	31(15.5%)	71(35.5%)	102(51.0%)	0.003 (s)
		No	13(6.5%)	85(42.5%)		

Significant (s), non-significant (ns)

**Discussion**

In the present study, comparatively females were lower than the males and majority number of subjects were general practitioner (33.5%). The collective reason behind this could be family or domestic commitments and also gender- wise male dentist has more tendencies to go for private practice than females and comparatively devote more time to routine practice than females.<sup>8, 9, 10</sup> This finding is in accordance with other studies conducted by Gambhir et al. and Yashoda et al where majority number of general practitioners (51%) were males.<sup>11</sup> Our finding in the present study shows that majority of subjects 183(91.5%) showed their participation in any

dental workshops/CDE’S program/Courses/ Seminars/ Reading of journals or Newsletter & this finding is in accordance with the study done by Marieke M. Van der Zande et al.<sup>12,13</sup> In the current study Regarding the Knowledge of Digital Dentistry in terms of Administrative & communication technology it was found that majority of the dental professionals 183(91.5%) were aware of digital appointment/reminders and 172(86%) were aware about maintenance of patient general information & dental record digitally which is in line with the study done by Marieke et al where 93.2% subjects were aware of the digital appointment and 75% were aware of maintenance

of patient general information & dental record digitally.<sup>14,15</sup>

In the current study Regarding the Knowledge of Digital Dentistry in terms of Clinical & Diagnostic technologies it was found that knowledge regarding usage of Digital intraoral radiography (94%), digital OPG (94.5%) & digital 3 D Radiography(94.5%) were more among dental professionals as compared to usage of intraoral camera (85%), scanner (78%), CAD/CAM System (86%) & Digital colour determination (69%). This is in line with the study done by Marieke et al where following percentage were found Digital radiography (90%), digital 3 D radiography (74%), & digital OPG (57.2%) as compared to usage of intraoral camera (26.4%), scanner (12%), CAD/CAM System (8.4%) & Digital colour determination (6.8%).<sup>16,17</sup>

In our study , Regarding CBCT , category wise it was found that maximum general practitioner 63(31.5%), qualification wise 148( 74.0%) postgraduates were aware about CBCT. These findings were dissimilar to the study conducted by Aditya et al who found that CBCT was less widely used in clinical practice due to low awareness regarding application of CBCT among practitioners.<sup>18</sup>

In this study, the dental professionals felt that digital & electronic technologies were more efficiently used for more aspects of dental practice. For certain aspects (such as reduction in patient chair side treatment) 84.5% of respondents perceived the technologies as quite capable or very capable of improving practice. These results are similar to perceptions of the capabilities of technology among Canadian orthodontist (88.5%).<sup>19</sup>

Regarding the practice of digital dentistry in the field of CBCT it was found that qualification wise 45(51%) postgraduate were satisfied with the practice of CBCT.

This is in contrast with the study done by Misra et al in which 76.5% undergraduate were satisfied with the practice of CBCT.<sup>20, 21</sup>

In the present study 85% subject felt that cost of equipment is the major obstacles regarding the usage of digital dentistry which is in accordance with the study done by Carlos et al where majority of subjects (63%) felt that cost of equipment and lack of comfort with technology (47%) were the most important obstacles of digital dentistry.<sup>22</sup> The obstacles that impede the acceptance of digital dentistry in India include cost, lack of comfort with technology, software incompatibility and unclear guidelines.

### **Recommendations**

Following recommendations are proposed:

Most of the dental professionals want to incorporate Digital dentistry in practice but don't know about the way of implementation so training must be given to them.

Various CDE programmes and workshops must be composed for dental experts on new advancements & innovation regarding Digital dentistry.

The government must take care of the issue of repayment for dental treatment as installment is the principal impediment in India on the way of digital dentistry.

Cost reduction and technology advancement may enhance utilization of digital dentistry

### **Conclusion**

The results of this study have demonstrated a variation in the knowledge, attitude and practices in most aspects of Digital Dentistry among dental professionals in Patna. It is found that Postgraduate dental professionals were having more knowledge & attitude towards digital dentistry were as general practitioner were better in practicing digital dentistry. Apart from that High cost was the main Perceived obstacles to the use of Digital and electronic technologies in Dental offices.

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